

The Peregrine Fund Uses GPS PTTs to Help Conserve Critically Endangered Asian Vultures

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In the past ten years three species of the large Gyps vultures of the Indian subcontinent have suffered more than 95% population declines. Once abundant, they are now listed among the most critically endangered birds on earth. The culprit is diclofenac, a non-steroidal anti-inflammatory drug administered to sick and injured livestock with much the same effect as humans might use ibuprofen. The carcasses of ailing livestock, which frequently die despite treatment, often have levels of the drug in their system that are lethal to vultures when consumed, causing kidney failure and rapid death.

The challenge faced by The Peregrine Fund and its partners is to reduce vulture exposure to diclofenac, at least until the infrastructure for long term vulture conservation efforts is established. Extinction

catastrophic species decline in the wake of diclofenac introduction. The GPS PTTs are programmed to collect data every hour during daylight when birds are on the move, and to download the data every 24 hours. They deliver valuable information on flight altitude and speed, foraging range, feeding sites and dispersal, roost site fidelity and location of nesting sites. The level of detailed

information could be over-whelming but data is quickly downloaded into a GIS for analysis. Locations are so precise that biologists can often track down the individual vulture for direct observation, find the source of its last meal, and retrace its every move from the day before.

The GPS PTTs provide important data for designing overall conservation

strategies and they are central to evaluating stop-gap conservation measures, such as The Peregrine Fund's "vulture restaurant" at Toawala in Pakistan. The vulture restaurant provides the largest of the remaining *Gyps bengalensis* breeding colonies with diclofenac-free carcasses in an attempt to limit their rate of exposure to contaminated carcasses by reducing their foraging range. Data from the GPS PTTs illustrate that in some instances the vulture restaurant has constricted the foraging range of local vultures from 300 km to 10-25 km, significantly reducing their exposure to diclofenac contaminated meat. Rates of vulture mortality within the colony were also reduced during the breeding season when vultures were resident, granting these birds a new "lease on life" sufficient to buy time for the establishment of captive breeding facilities and release programs - their best chance for ultimate survival.



Photo by Martin Gilbert

In 2003 The Peregrine Fund discovered the lethal effects of the drug diclofenac, commonly used in livestock in south Asia, has decimated three Asian species of Gyps vulture (2004 Nature 427: 630-633). Conservation efforts have focused on minimizing exposure of vultures to diclofenac contaminated carcasses.



Photo by Martin Gilbert

Peregrine Fund student Shakeel Ahmed holds "White," one of six GPS PTT wing-tagged Oriental White-backed Vultures that provided hourly movement data in a project aimed to reduce exposure of vultures to the fatal effects of diclofenac contaminated carcasses, at Toawala colony, Pakistan.

looms on the horizon and their already reduced numbers leave no room for mistakes; but the task of reducing exposure to diclofenac in primary food sources is a difficult one, especially when the species is as far ranging and understudied as the Gyps vultures of the Indian subcontinent.

In late 2003 The Peregrine Fund fitted six Oriental White-backed Vultures with wing-mounted, solar powered GPS PTTs and set out to gather the information needed, fast. Now in their second year of use, the GPS PTTs have helped to make up for a severe lack of previous research on the Gyps vultures and close the gap on more than a decade of



Photo by Martin Gilbert

A Vulture named "Orange" takes flight from a tree-top after being fitted with a wing-mounted solar-powered Microwave Telemetry GPS PTT. Data provided intimate details of the vulture's daily life that helped conservation efforts focused on reducing exposure to diclofenac.